**WHAT IS CLAIMED IS**:

1. A system for enhancing capacity in a packet switched network, wherein data queues are intelligently managed, comprising:

i. an advanced classifying module;

ii. a single physical queue; and

iii. a data output mechanism for extracting said data from said queue.

2. The system of claim 1, wherein said advanced classifying module enables advanced classification of data packets based on criteria selected from the group consisting of packet priority, smoothing, packet states, arrival time of new packets, packet types and packet data content.

3. The system of claim 1, wherein said advanced classifying module manipulates classified packets by positioning said classified packets in chosen places in said single physical queue.

4. The system of claim 1, wherein said single physical queue enables packets to be positioned in any place in said queue during open sessions.

5. A method for enhancing capacity in a packet switched network, comprising the following steps:

i. classifying data packets according to criterion selected from the group consisting of packet priority, smoothing, packet states and packet types;

ii. placing said classified packets in a queue; and

iii. extracting said packets from said queue.

6. The method of claim 5, wherein said placing said packets further includes positioning said packets in any place in said queue.

7. The method of claim 6, wherein said queue is a single physical queue.

8. A method for capacity enhancement by improved queue management in a packet switched network, comprising the following steps:

i. classifying each individual data packet; and

ii. positioning each said individual data packet anywhere in a queue, according to a pre-defined state.

9. The method of claim 8, wherein said positioning further comprises leaving open spaces in said queue for potential packets.

10. The method of claim 8, wherein said queue is a single physical queue.

11. The method of claim 8, wherein said classifying data packets incorporates factors selected from the group consisting of packet priority, smoothing, packet states and packet types.

12. The method of claim 11, wherein said priority incorporates dynamic session factors.

13. The method of claim 11, wherein said smoothing further comprises factors selected from the group consisting of session history and queue history.

14. The method of claim 11, wherein said classifying data packets into states is based on the round trip time criteria for data sessions.

15. The method of claim 8, wherein said states incorporate packets selected from the group consisting of new session packets, retransmitted packets, session initialization packets, burst packets, signaling and control packets, special events in the application protocol level based packets, and events connected to real time synchronized applications based packets.

16. A method for performance enhancement in a packet switched network, by enabling an improved drop-policy for data packets in an overloaded queue, comprising the following steps:

i. classifying each individual data packet, such that said classifying incorporates factors selected from the group consisting of priority, smoothing and states; and

ii. discarding chosen individual packets based on said classification.

17. A method for enabling data network capacity enhancement by improved management of packets in a queue, comprising the steps of:

i. classifying the packets according to priority, by determining the individual characteristics of any individual packets;

ii. considering a smoothing procedure so as to represent said packets fairly;

iii. considering states of each said packet, so as to represent special events;

iv. positioning said packets anywhere in a single physical queue.

18. The method of claim 17, wherein said considering states of each packet further comprises defining packet types selected from the group consisting of first data packets in a newly established session, retransmitted packets, session initialization packets, burst packets, signaling and control packets, special events in the upper layer protocol level packets, events connected to real time applications packets, events connected to synchronous applications packets, and events connected to delay sensitive protocols packets.

19. A method for intelligent classification of data packets in packet switched networks, such that packets are intelligently classified, according to the following steps:

i. analyzing the packets' ULP headers, said analyzing enabling defining of packet priority on a per packet basis;

ii. analyzing queue history for a data communication session that includes the packets, such that session dynamics can be identified; and

iii. analyzing session history for said data communication session, such that said session dynamics can be identified.

iv. analyzing content-related data of the packets, such that packet states can be identified.

20. A method for switching queue management policies during open data transfer sessions in a packet switched network, comprising the steps of:

i. operating a queue management policy for the network, according to a simple queue management policy mechanism, while there is low utility of data queues;

ii. monitoring said queues to determine queue length;

iii. monitoring said queues to determine queue growth rate;

iv. deciding at a chosen network traffic level to implement an alternative queue management policy, based on said queue length and said queue growth criteria.

21. A method for switching queue management policies for open data transfer sessions in a packet switched network, comprising the steps of:

i. operating a queue management policy for the network, according to a chosen queue management policy mechanism, while there is high utility of data queues;

ii. monitoring said queues to determine queue length;

iii. monitoring said queues to determine queue growth rate;

iv. deciding at a chosen network traffic level to implement a more simple queue management policy, based on said queue length and said queue growth criteria.

22. A method for providing a multi-directional capacity enhancement mechanism for physical bandwidth in a packet switched network, comprising:

i. providing a DSDQ mechanism in an outgoing data channel for enhancing said data channel capacity; and

ii. providing a DSDQ mechanism in an incoming data channel for enhancing said data channel capacity.

23. A method for providing a point to multi-point configuration for enhancing network bandwidth capacity for a plurality of data channels in a packet switched network, comprising:

i. providing a box with a DSDQ mechanism, for enhancing the data channels capacity; and

ii. configuring said box with DSDQ mechanism in a centralized node for enabling enhanced queue management for each queue for each of the data channels.